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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KIM, DAVID S	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/699,604	EVANGELIDES ET AL.	
	Examiner	Art Unit	
	David S. Kim	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 November 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12 July 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following claim limitations must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

(claims 10, 20, 32, and 44) means for supplying pump power to impart Raman amplification to the optical signals; and

(claim 46) the external source from which the terrestrial traffic is received is a remotely located cable station.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-2, 5-6, 8, 10-12, 15-16, 18, 20-24, 27-28, 30, 32-36, 39-40, 42, and 44** are rejected under 35 U.S.C. 102(b) as being anticipated by Chesnoy et al. (*Undersea Fiber Communication Systems*, hereinafter "Chesnoy").

Regarding claim 1, Chesnoy discloses:

A land-based cable station for an undersea optical transmission system, comprising:

submarine line terminal equipment (SLTE) (p. 378, SLTE in Fig. 1) for processing terrestrial traffic received from an external source;

power feed equipment (p. 378, PFE) for supplying electrical power to active undersea components of the transmission system;

an element management system (p. 378, EMS) for configuring and obtaining status information from the transmission system;

a cable termination box (p. 378, CTB) in which an undersea cable terminates; and

wherein said SLTE includes:

terrestrial optical transmission equipment (e.g., p. 381, Tributary Block in Fig. 2, p. 387, top Tributary in Fig. 3) receiving the terrestrial traffic (p. 377, last line) and generating optical signals in response thereto; and

an interface device (e.g., p. 381, WDM Block, p. 387, WDM Block) providing signal conditioning to the optical signals received from the terrestrial optical transmission equipment so that the optical signals are suitable for transmission through the undersea optical transmission system.

Regarding claim 2, Chesnoy discloses:

The cable station of claim 1 wherein said terrestrial optical equipment is a SONET/SDH terminal (e.g., note usage of STM signals in Figs. 1 and 3, p. 381 and 387, STM signals belong to the SDH format, p. 409, section B).

Regarding claim 5, Chesnoy discloses:

The cable station of claim 1 wherein said undersea optical transmission system is a WDM (p. 377, WDM references) transmission system.

Regarding claim 6, Chesnoy discloses:

The cable station of claim 1 wherein the interface device is configured to perform at least one signal conditioning process selected from the group consisting of gain equalization (p. 383, section 2), bulk dispersion compensation (p. 391-392, bridging paragraph), optical amplification (line amps in Figs. 2-3), Raman amplification (p. 387, DRA in Fig. 3), dispersion slope compensation, PMD compensation, load balancing, and performance monitoring (SV CONT in Figs. 2-3).

Regarding claim 8, Chesnoy discloses:

The cable station of claim 1 wherein said interface device includes line monitoring equipment (SV CONT in Figs. 2-3).

Regarding claim 10, Chesnoy discloses:

The cable station of claim 1 wherein said interface device includes means for supplying pump power (p. 387, DRA in Fig. 3, p. 392, section c) to impart Raman amplification to the optical signals.

Regarding claim 11, claim 11 is a system claim that corresponds largely to the apparatus claim 1. Therefore, the recited means in apparatus claim 1 read on the corresponding means in system claim 11. Claim 11 also includes limitations absent from claim 1. Chesnoy also discloses these limitations:

An undersea optical transmission system, comprising:

at least first and second cable stations (e.g., terminal Fig. 1 and the corresponding partner terminal at the other end of the submarine cable) remotely located with respect to one another;

an undersea optical transmission path (e.g., submarine cable in Fig. 1) optical coupling the first and second cable stations; and

at least one optical repeater (repeater reference on p. 379, middle paragraph) located along the optical transmission path.

Regarding claims 12, 15-16, 18, and 20, claims 12, 15-16, 18, and 20 are system claims that introduce limitations that correspond to the limitations introduced by apparatus claims 2, 5, 6, 8, and 10, respectively. Therefore, the recited means in apparatus claims 2, 5-6, 8, and 10 read on the corresponding means in system claims 12, 15-16, 18, and 20.

Regarding claim 21, Chesnoy discloses:

The undersea optical transmission system of claim 11 wherein said optical repeater includes at least one rare-earth doped optical amplifier (erbium-doped fiber amplifiers, EDFAs on p. 385, section B, 2nd paragraph).

Regarding claim 22, Chesnoy discloses:

The undersea optical transmission system of claim 11 wherein said undersea optical transmission path is a WDM transmission path (p. 377, WDM references).

Regarding claims 23-24, 27-28, 30, and 32-34, claims 23, 24, 27, 28, 30, 32, 33, and 34 are system claims that introduce limitations that correspond to the limitations introduced by system claims 11, 12, 15, 16, 18, 20, 21, and 22, respectively. Therefore, the recited means in system claims 11-12, 15-16, 18, and 20-22 read on the corresponding means in system claims 23-24, 27-28, 30, and 32-34.

Regarding claims 35-36, 39-40, 42, 44, claims 35, 36, 39, 40, 42, and 44 are apparatus claims that introduce limitations that correspond to the limitations introduced by

apparatus claims 1, 2, 5, 6, 8, and 10, respectively. Therefore, the recited means in apparatus claims 1-2, 5-6, 8, and 10 read on the corresponding means in apparatus claims 35, 36, 39, 40, 42, and 44.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 3-4, 13-14, 25-26, 37-38, and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chesnoy as applied to the claims above, and further in view of Ramaswami et al. (*Optical Networks: A Practical Perspective*, hereinafter "Ramaswami").

Regarding claim 3, Chesnoy does not expressly disclose:

The cable station of claim 1 wherein said terrestrial optical terminal is an ATM terminal.

However, ATM is a communication protocol that is so well known that it has become a standard. Ramaswami discusses ATM (p. 381+). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange said terrestrial optical terminal of Chesnoy to implement ATM (thus making the terminal of Chesnoy into an ATM

terminal). One of ordinary skill in the art would have been motivated to do this since ATM provides various well-known advantages, such as the "ability to provide quality-of-service guarantees" (Ramaswami, p. 381, bridging paragraph).

Regarding claim 4, Chesnoy does not expressly disclose:

The cable station of claim 1 wherein said terrestrial optical terminal is a Gigabit Ethernet terminal.

However, Gigabit Ethernet is a communication protocol that is so well known that it has become a standard. Ramaswami discusses Gigabit Ethernet (p. 398). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange said terrestrial optical terminal of Chesnoy to implement Gigabit Ethernet (thus making the terminal of Chesnoy into a Gigabit Ethernet terminal). One of ordinary skill in the art would have been motivated to do this since Gigabit Ethernet is a popular choice in various types of networks (Ramaswami, p. 398, 2nd paragraph). In one desired to have the network of Chesnoy communicate ("talk") with other Gigabit Ethernet networks, implementation of the Gigabit Ethernet protocol ("language") would be accordingly desired.

Regarding claims 13-14, claims 13 and 14 are system claims that introduce limitations that correspond to the limitations introduced by apparatus claims 3 and 4, respectively. Therefore, the recited means in apparatus claims 3-4 read on the corresponding means in system claims 13-14.

Regarding claims 25-26, claims 25 and 26 are system claims that introduce limitations that correspond to the limitations introduced by system claims 13 and 14, respectively. Therefore, the recited means in system claims 13-14 read on the corresponding means in system claims 25-26.

Regarding claims 37-38, claims 37 and 38 are apparatus claims that introduce limitations that correspond to the limitations introduced by apparatus claims 3 and 4,

respectively. Therefore, the recited means in apparatus claims 3-4 read on the corresponding means in apparatus claims 37-38.

Regarding claim 45, Chesnoy does not expressly disclose:

The cable station of claim 1 wherein said terrestrial optical equipment is an IP-based router.

However, IP is a communication protocol that is so well known that it has become a standard. Ramaswami discusses IP (p. 388+). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange said terrestrial optical terminal of Chesnoy to implement IP as an IP-based router (Ramaswami, the key network element in an IP network is an IP router, p. 390, section 6.3.1, 1st paragraph). One of ordinary skill in the art would have been motivated to do this since "IP is by far the most widely used wide-area network technology today. IP is the underlying network protocol used in the all-pervasive Internet and is equally important in most private intranets to link up computers" (Ramaswami, p. 388, section 6.3, 1st paragraph). In one desired to have the network of Chesnoy communicate ("talk") with other IP networks, including the Internet, implementation of IP ("language") would be accordingly desired.

7. **Claims 7, 17, 29, and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chesnoy as applied to the claims above, and further in view of the admitted prior art (hereinafter "APA") and Ramaswami.

Regarding claim 7, Chesnoy does not expressly disclose:

The cable station of claim 1 wherein the external source from which the terrestrial traffic is received is a terrestrial point-of-presence.

However, Chesnoy does teach the external source (e.g., p. 381, section 1, lines 1-2). Additionally, the APA teaches that such external sources are generally points-of-presence. At the time the invention was made, it would have been obvious to a person of ordinary skill in the

art to arrange the external source of Chesnoy to be a terrestrial point-of-presence. One of ordinary skill in the art would have been motivated to do this since terrestrial points-of-presence are also known as central offices (Ramaswami, p. 4, 4th full paragraph); central offices are conventionally known as sources of traffic, terrestrial or otherwise.

Regarding claim 17, claim 17 is a system claim that introduces limitations that correspond to the limitations introduced by apparatus claim 7. Therefore, the recited means in apparatus claim 7 read on the corresponding means in system claim 17.

Regarding claim 29, claim 29 is a system claim that introduces limitations that correspond to the limitations introduced by system claim 17. Therefore, the recited means in system claim 17 read on the corresponding means in system claim 29.

Regarding claim 41, claim 41 is an apparatus claim that introduces limitations that correspond to the limitations introduced by apparatus claim 7. Therefore, the recited means in apparatus claim 7 read on the corresponding means in apparatus claim 41.

8. **Claims 9, 19, 31, and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chesnoy as applied to the claims above, and further in view of the APA.

Regarding claim 9, Chesnoy does not expressly disclose:

The cable station of claim 8 wherein line monitoring equipment is a COTDR arrangement.

However, the APA teaches that COTDR arrangements in cable stations are known (paragraph [0004]). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include a COTDR arrangement as line monitoring equipment in the cable station of Chesnoy. One of ordinary skill in the art would have been motivated to do this since COTDR arrangements monitor and measure the optical of transmission lines (paragraph [0004]), thus providing useful diagnostic information to a practitioner of the cable station of Chesnoy in view of the APA.

Regarding claim 19, claim 19 is a system claim that introduces limitations that correspond to the limitations introduced by apparatus claim 9. Therefore, the recited means in apparatus claim 9 read on the corresponding means in system claim 19.

Regarding claim 31, claim 31 is a system claim that introduces limitations that correspond to the limitations introduced by system claim 19. Therefore, the recited means in system claim 19 read on the corresponding means in system claim 31.

Regarding claim 43, claim 43 is an apparatus claim that introduces limitations that correspond to the limitations introduced by apparatus claim 9. Therefore, the recited means in apparatus claim 9 read on the corresponding means in apparatus claim 43.

9. **Claim 45** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chesnoy as applied to the claims above, and further in view of Suyama et al. ("WDM Optical Submarine Network Systems," hereinafter "Suyama").

Regarding claim 45, Chesnoy does not expressly disclose:

The cable station of claim 1 wherein said terrestrial optical equipment is an IP-based router.

However, IP is a communication protocol that is so well known that it has become a standard. Suyama discusses IP and IP-based routers (p. 42). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange said terrestrial optical terminal of Chesnoy to implement IP as an IP-based router. One of ordinary skill in the art would have been motivated to do this since "[i]t is important to apply the IP technology to the submarine cable networks, as the international backbone network also shifts towards an IP based network" (Suyama, p. 42, section 4.2.3, 1st paragraph). Such an IP-based router would enable features like: efficient transportation of IP traffic, lower cost for network equipment, easy integration with other networks using IP protocols, simplified network

architectures and protection, and the possibility to protect the network using the routing protocol (Suyama, p. 42, section 4.2.3).

10. **Claim 46** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chesnoy.

Regarding claim 46, Chesnoy does not expressly disclose:

The cable station of claim 1 wherein the external source from which the terrestrial traffic is received is a remotely located cable station.

However, Chesnoy does teach the external source (e.g., p. 381, section 1, lines 1-2). Additionally, cable stations are already known, as shown by the entire disclosure of Chesnoy. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange the external source of Chesnoy to be a remotely located cable station. One of ordinary skill in the art would have been motivated to do this as part of the integration of submarine and terrestrial systems (p. 402, section C). Such integration is desirable since seamless operation between submarine and terrestrial systems is required to achieve end-to-end path settings for paths that span across a mix of submarine and terrestrial systems (p. 402, section C).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fells et al., Feinberg, and Shinno et al. are cited to show cable stations that include interface devices that provide signal conditioning to optical signals so that the optical signals are suitable for transmission through optical transmission systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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